

Synchronized Robust Control of a Gait Trainer

Fu-Cheng Wang, Chung-Huang Yu, Chia-Hui Chen, Tai-Yu Chou and Chen-En Tsai

Abstract

This paper proposes synchronized robust control for an active gait trainer. We design an active gait trainer, which composes of linkage mechanism and motors, to produce preferred gait traces for people with walking disability. The goal of this work is to simultaneously control the motors to mimic normal gaits. By finding the transfer functions of the mechanism and motors, we design robust controllers to regulate the trainer in a synchronic way. The designed controllers are implemented on a cRIO™ system for experimental verification. From the results, the proposed synchronized robust control is deemed effective.